



NATIONAL FIRE PROTECTION ASSOCIATION

The leading information and knowledge resource on fire, electrical and related hazards

AGENDA

NFPA Technical Committee on Wood and Cellulosic Materials Processing (CMD-WOO) NFPA 660 Second Draft Meeting (F2024)

March 6, 2024
8:00 a.m. – 5:00 p.m. (EST)

Hyatt Place Tampa Airport/Westshore
4811 W Main Street, Tampa, Florida 33607

To join the meeting, please contact YLee@nfpa.org

- 1. Call to order.** Jason Reason.
- 2. Introductions.** See committee roster attached.
- 3. Chair report.** Jason Reason.
- 4. Staff liaison report.** Laura Moreno.
- 5. Previous meeting minutes.** February 2023, Charlotte NC, NFPA 660 First Draft Meeting. See attached.
- 6. NFPA 660 Second Draft.**
 - a. Public Comments.** See attached.
 - b. Task group reports.**
 - i. Pneumatic Conveying and Dust Collection.**
 - c. Committee Inputs.** See attached.
 - d. Correlating Committee Task group reports.**
 - i. Definitions.**
 - ii. DHA.**
 - iii. Air-material Separator Definition.**
 - iv. Resistivity.**
 - v. Hazard/Hazard Areas.**
 - vi. Clean Air Exhaust.**
 - vii. Firefighting.**
- 7. Other Business.**
- 8. Future meetings.**
- 9. Adjournment.**

Address List No Phone

02/16/2024
Laura E. Moreno
CMD-WOO

Wood and Cellulosic Materials Processing Combustible Dusts

Jason P. Reason	M 08/05/2009	Robert C. Berry	I 7/24/1997
Chair Airdusco, Inc. 2291 Maple Stone Lane Greenwood, IN 46143 Alternate: Jack E. Osborn	CMD-WOO	Principal AIG 1508 Beech Circle Wilkesboro, NC 28697-2602	CMD-WOO
John M. Cholin	SE 1/1/1992	Benjamin Craig	SE 03/20/2023
Principal J. M. Cholin Consultants Inc. 101 Roosevelt Drive Oakland, NJ 07436	CMD-WOO	Principal Insight Risk/D.B.A. REM Risk Consultants 12200 Ford Road, Suite A265 Dallas, TX 75234	CMD-WOO
Stephen E. Dale	I 08/09/2012	Ashok Ghose Dastidar	SE 8/9/2011
Principal Cincinnati Insurance Company 6200 South Gilmore Road Fairfield, OH 45014-5141 Alternate: Joseph Callisto	CMD-WOO	Principal Fauske & Associates, LLC 16W070 83rd Street Burr Ridge, IL 60527-5802	CMD-WOO
Randal R. Davis	M 7/14/2004	Scott E. Dillon	SE 10/28/2014
Principal IEP Technologies/HOERBIGER 417-1 South Street Marlborough, MA 01752-3149 Alternate: Peter Karalis	CMD-WOO	Principal Crane Engineering 2355 Polaris Lane North Suite 120 Plymouth, MN 55447-4777	CMD-WOO
Dennis W. Eaves	I 7/24/1997	Dan A. Guaricci	M 4/1/1997
Principal Beecher Carlson Six Concourse Parkway Suite 2300 Atlanta, GA 30328	CMD-WOO	Principal ATEX Explosion Protection, L.P. 2629 Waverly Barn Road Suite 130 Davenport, FL 33897	CMD-WOO
Adam Haroz	SE 12/02/2020	Todd Hensley	M 12/06/2019
Principal Conversion Technology Inc. 2190 N. Norcross Tucker Road Suite 202 Norcross, GA 30071 Alternate: Chris Frendahl	CMD-WOO	Principal Entecco Filter 340 Habersham Road High Point, NC 27260	CMD-WOO
Jason Krbec	M 04/02/2020	Peter Levitt	M 4/17/1998
Principal CV Technology, Inc. 15852 Mercantile Court Jupiter, FL 33478	CMD-WOO	Principal Sternvent Division of Durex, Inc. 5 Stahuber Avenue Union, NJ 07083-5086	CMD-WOO

Address List No Phone

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Wood and Cellulosic Materials Processing Combustible Dusts

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Ken J. Mayeaux	U 04/16/1999	Bruce McLelland	M 08/11/2014
Principal International Paper Company Global Risk Management 1740 International Drive Tower 4, Room 7-035 Memphis, TN 38197	CMD-WOO	Principal Fike Corporation 704 SW 10th Street Blue Springs, MO 64015-4263 Alternate: Gilles David Plourde	CMD-WOO
Jeremy Miller	I 08/17/2018	Timothy J. Myers	SE 4/14/2005
Principal Liberty Mutual 2687 Catawba Drive NW Kennesaw, GA 30152 Alternate: Keith Sullivan	CMD-WOO	Principal Exponent, Inc. 1075 Worcester Street Natick, MA 01760	CMD-WOO
Jeffrey C. Nichols	M 03/07/2013	Matthew Paine	I 12/08/2015
Principal Industrial Fire Prevention LLC PO Box 2046 Milledgeville, GA 31059	CMD-WOO	Principal FM Global 270 Centra Johnston, RI 02919 Alternate: Andrew Ryerson	CMD-WOO
Jeffrey S. Patton, II	I 08/03/2016	Jeffrey R. Roberts	I 04/08/2015
Principal The Hanover Insurance Group Hanover Specialty Industrial Property 10480 Little Patuxent Pkwy Suite 500 Columbia, MD 21044	CMD-WOO	Principal AXA XL/Global Asset Protection Services, LLC 128 Twin Oaks Drive Brandon, MS 39047-9027	CMD-WOO
Jeramy Slaunwhite	M 08/11/2020	Francois Tanguay	U 3/15/2007
Principal Rembe Inc. 1279 Old Sackville Road Middle Sackville, NS B4E 3A6 Canada Alternate: Till Westerbarkey	CMD-WOO	Principal Louisiana Pacific Canada Ltd. Regional Engineering Manager Siding Operations 567 Victoria, Suite 110-3 Saint-Lambert, QC J4P 3R2 Canada	CMD-WOO

Address List No Phone

02/16/2024
 Laura E. Moreno
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Wood and Cellulosic Materials Processing

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Chris Frendahl	SE 11/29/2023	Peter Karalis	M 10/29/2012
Alternate Conversion Technology Inc. 2190 N Norcross Tucker Road Suite 202 Norcross, GA 30071 Principal: Adam Haroz	CMD-WOO	Alternate IEP Technologies 417-1 South Street Marlborough, MA 01752-3149 Principal: Randal R. Davis	CMD-WOO
Jack E. Osborn	M 3/4/2009	Gilles David Plourde	M 08/08/2019
Alternate Airdusco, Inc. 4739 Mendenhall Road South Memphis, TN 38141-8202 Principal: Jason P. Reason	CMD-WOO	Alternate Fike Corporation Canada 4400 Mainway Burlington, ON L7L 5Y5 Canada Principal: Bruce McLelland	CMD-WOO
Ed W. Pridgen	M 08/10/2022	Andrew Ryerson	I 04/03/2019
Alternate Flamex, Inc. 4365 Federal Drive Greensboro, NC 27410 Principal: Allen Wagoner	CMD-WOO	Alternate FM Global 270 Central Avenue Johnston, RI 02919 Principal: Matthew Paine	CMD-WOO
Keith Sullivan	I 08/11/2020	Till Westerbarkey	M 03/20/2023
Alternate Liberty Mutual Insurance 1925 Tall Oaks Drive Unit 2706 Aurora, IL 60505 Principal: Jeremy Miller	CMD-WOO	Alternate REMBE, Inc. 9567 Yarborough Road Fort Mill, SC 29707 Principal: Jeramy Slaunwhite	CMD-WOO
Laura E. Moreno	9/13/2017		
Staff Liaison National Fire Protection Association One Batterymarch Park Quincy, MA 02169-7471	CMD-WOO		



NATIONAL FIRE PROTECTION ASSOCIATION

The leading information and knowledge resource on fire, electrical and related hazards

MINUTES

NFPA Technical Committee on Wood and Cellulosic Materials Processing (CMD-WOO) NFPA 660 First Draft Meeting (F2024)

February 2-3, 2023
8:00 a.m. – 5:00 p.m. (ET)

Hilton Garden Inn Charlotte-Uptown
508 E Martin Luther King Jr. Blvd, Charlotte, North Carolina 28202-2830

1. **Call to order.** Jason Reason, chair, called the meeting to order at 8:02 a.m. on February 2.
2. **Introductions.** Attendees introduced themselves and identified their affiliation.
3. **Chair report.** Jason Reason welcomed attendees and provided an overview of the meeting.
4. **Staff liaison report.** Laura Moreno provided an overview of the standards development process and the revision cycle schedule.
5. **Previous meeting minutes.** The minutes from December 12, 2022 (Teleconference) were approved without revision.
6. **NFPA 660 First Draft.**
 - a. **Review of Public Inputs.** The Technical Committee reviewed the Public Inputs and developed First Revisions and Committee Inputs as necessary. These will be available in the First Draft Report at www.nfpa.org/660.
 - b. **Task group reports.** Each task group provided their reports and recommendations, and revisions were made as necessary. The task groups have been discharged with thanks.
 - c. **New task groups.** The following task groups were appointed to work subsequent to the meeting:
 - i. **Pneumatic Conveying and Dust Collection.** Members: Jack Osborn and Jason Reason. The task group will review 15.9.4.3.2 and 15.9.4.3.3 to determine what is repetitive with Chapter 9, and if there should be differences between the pneumatic conveying and dust collector sections (see Committee Input 305). The task group will also consider whether 15.9.4.3.2.4 Fans and Blowers should be moved to the general Fans and Blowers section (15.9.5.15) or if it is specific to pneumatic conveying, and consider adding information to A.15.9.5.15.2 regarding proper selection of the fan for the application.
7. **Future meetings.** The next committee meeting will be between January 4 and March 28, 2024. A meeting notification will be posted at www.nfpa.org/660next when the meeting is scheduled.

8. Adjournment. The meeting adjourned at 5:12 p.m. on February 2.

Attendees

Committee Members:

✓	Reason, Jason	Chair	Airdusco, Inc.
✓	Berry, Robert	Principal	AIG
✓	Cholin, John	Principal	J. M. Cholin Consultants Inc.
✓	Dale, Stephen	Principal	Cincinnati Insurance Company
✓	Dastidar, Ashok	Principal	Fauske & Associates, LLC
	Davis, Randal	Principal	IEP Technologies/HOERBIGER
✓	Dillon, Scott*	Principal	Crane Engineering
✓	Eaves, Dennis	Principal	Beecher Carlson
	Guaricci, Dan	Principal	ATEX Explosion Protection, L.P.
✓	Haro, Adam*	Principal	Conversion Technology Inc.
	Hensley, Todd	Principal	Entecco Filter
✓	Krbec, Jason*	Principal	CV Technology, Inc.
✓	Levitt, Peter*	Principal	Sternvent Division of Durex, Inc.
✓	Masta, Richard	Principal	Georgia-Pacific LLC
✓	Mattos, Arthur	Principal	TUV SUD America Inc./Global Risk Consultants
✓	Mayeaux, Ken	Principal	International Paper Company
✓	McLelland, Bruce	Principal	Fike Corporation
✓	Miller, Jeremy*	Principal	Liberty Mutual
✓	Myers, Timothy*	Principal	Exponent, Inc.
	Nichols, Jeffrey	Principal	Industrial Fire Prevention LLC
✓	Paine, Matthew*	Principal	FM Global
✓	Patton, Jeffrey	Principal	The Hanover Insurance Group
✓	Roberts, Jeffrey	Principal	Global Asset Protection Services, LLC
✓	Slaunwhite, Jeramy	Principal	Rembe Inc.
✓	Tanguay, Francois	Principal	Louisiana Pacific Canada Ltd.
	Ural, Erdem	Principal	Loss Prevention Science & Technologies, Inc.
✓	Wagoner, Allen	Principal	FLAMEX, Inc.

	Callisto, Joseph	Alternate	Cincinnati Insurance Company
	Karalis, Peter	Alternate	IEP Technologies
✓	Miller, Kerry*	Alternate	Louisiana Pacific Building Products, Inc.
✓	Osborn, Jack	Alternate	Airdusco, Inc.
	Plourde, Gilles	Alternate	Fike Corporation Canada
	Pridgen, Ed	Alternate	Flamex, Inc.
✓	Ryerson, Andrew	Alternate	FM Global
	Sullivan, Keith	Alternate	Liberty Mutual Insurance
✓	Moreno, Laura	Staff Liaison	National Fire Protection Association

*Participated by teleconference

Total number in attendance: 26



Public Comment No. 84-NFPA 660-2023 [Section No. 3.3.24]

3.3.24 * – Cyclone.

~~A cylindrical type of dust collector used to separate particulates from the air stream by centrifugal force, having an enclosure of circular cross-section, a tangential air and material inlet, an air exhaust outlet, and a material discharge. (CMD-WOO)~~

Statement of Problem and Substantiation for Public Comment

Definitions for Cyclone has been made to 3.3.5.1 as proposed by TG

Related Item

- FD report

Submitter Information Verification

Submitter Full Name: [REDACTED]

Organization: Nederman LLC

Street Address:

City:

State:

Zip:

Submittal Date: Wed Dec 20 09:55:44 EST 2023

Committee: CMD-WOO



Public Comment No. 234-NFPA 660-2024 [Section No. 3.3.27]

3.3.27 * – Deflagration Hazard.

A place or area where there is the following:

- (1) ~~A particulate capable of propagating deflagration by virtue of particle size, shape, and chemistry~~
- (2) ~~A means of suspending the particulate in an oxidizing atmosphere~~
- (3) ~~Sufficient particulate to exceed the minimum explosible concentration~~
- (4) ~~A potential competent ignition source or mechanism.~~

(CMD-WOO)

Statement of Problem and Substantiation for Public Comment

The new 3.3.38 replaces this definition.

Related Public Comments for This Document

Related Comment

Public Comment No. 232-NFPA 660-2024 [New Section after 3.3]

Relationship

The PC replaces this definition.

Related Item

- This is a modification to the new section 3.3

Submitter Information Verification

Submitter Full Name: [REDACTED]

Organization: FM Global

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jan 04 11:50:02 EST 2024

Committee: CMD-WOO



Public Comment No. 239-NFPA 660-2024 [Section No. 3.3.43]

3.3.43 * – Explosion Hazard.

See 3.3.37 , Dust Explosion Hazard. (CMD-WOO)

Statement of Problem and Substantiation for Public Comment

The new 3.3.38 replaces this section.

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
<u>Public Comment No. 232-NFPA 660-2024 [New Section after 3.3]</u>	
<u>Related Item</u>	
• This is a revision to the new 3.3	

Submitter Information Verification

Submitter Full Name: [REDACTED]
Organization: FM Global
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 04 11:58:30 EST 2024
Committee: CMD-WOO



Public Comment No. 325-NFPA 660-2024 [Section No. 14.1]

14.1 Administration.

[Update Ch 14 using the proposed definitions in 3 : 3.38]

14.1.1 Scope.

This standard provides the minimum requirements for fire and explosion prevention and protection of industrial, commercial, or institutional facilities that process wood or manufacture wood products using wood or other cellulosic fiber as a substitute for or an additive to wood fiber, and facilities that process wood, creating wood chips, particles, or dust.

14.1.1.1

Woodworking and wood processing facilities shall include, but are not limited to, wood flour plants, industrial woodworking plants, furniture plants, plywood plants, composite board plants, lumber mills, production-type woodworking shops, and carpentry shops.

14.1.1.2*

The requirements contained in the following sections shall not apply to woodworking operations that occupy areas smaller than 5000 ft² (465 m²), and where dust-producing equipment requires an aggregate dust collection flow rate less than 1500 ft³/min (2549 m³/hr):

- (1) Section 14.4
- (2) Section 14.5
- (3) Chapter 6
- (4) Section 14.7
- (5) Sections 8.1 through 8.3
- (6) Section 14.9, with the exception of 14.9.4.20, 14.9.6.13, and 14.9.5
- (7) Sections 14.10 and 14.11

14.1.2 Purpose.

The purpose of this standard shall be to provide minimum requirements, with due function, for the design, operation, and maintenance of woodworking and wood processing facilities for the safety to life, property protection, and mission continuity from fire and explosion.

14.1.2.1 Goal.

The goal of this standard shall be to provide for a woodworking and wood processing facility that is reasonably protected from fire or deflagration in a cost-effective manner.

14.1.3 Application.

14.1.3.1

This standard shall be applied to new facilities and to new processes within existing facilities.

14.1.3.2

This chapter shall modify and augment the requirements of Chapters 1 through 9.

14.1.4* Retroactivity. (Reserved)

Statement of Problem and Substantiation for Public Comment

This modification is tied to the definitions proposed in 3.3.38

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 232-NFPA 660-2024 [New Section after 3.3]	
<u>Related Item</u>	
• modified new Ch 14	

Submitter Information Verification

Submitter Full Name: [REDACTED]
Organization: FM Global
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 04 16:56:43 EST 2024
Committee: CMD-WOO



Public Comment No. 100-NFPA 660-2023 [Section No. 14.1.3.1]

14.1.3.1

This standard shall be applied to new facilities and to new processes within existing facilities.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._42.pdf	NFPA 660 CC Note No. 42	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 42 appeared in the First Draft Report in NFPA 660.

Delete this statement- it seems to introduce ambiguity to the retroactivity statement. It could be replaced with language explaining what the chapter applies to (mirroring other chapters).

Related Item

- CC Note 42

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

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City:

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Submittal Date: Wed Dec 20 12:07:39 EST 2023

Committee: CMD-WOO



Correlating Committee Note No. 42-NFPA 660-2023 [Section No. 15.1.3.1]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 15:49:04 EDT 2023

Committee Statement

Committee Statement: Delete this statement- it seems to introduce ambiguity to the retroactivity statement. It could be replaced with language explaining what the chapter applies to (mirroring other chapters).

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 101-NFPA 660-2023 [Section No. 14.1.4]

14.1.4* Retroactivity. (Reserved)

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._4.pdf	NFPA 660 CC Note No. 4	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 4 appeared in the First Draft Report on First Revisions No. 288 in NFPA 660.

Delete A.15.1.4 so that the retroactivity section in Ch 15 can be deleted (which will be A.14.1.4 and Chapter 14 after chapter renumbering). It is too broad as currently worded and is not consistent with the approach the other chapters have taken.

Related Item

- FR No 288

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

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City:

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Submittal Date: Wed Dec 20 12:10:25 EST 2023

Committee: CMD-WOO



Correlating Committee Note No. 4-NFPA 660-2023 [Section No. 15.1.4]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 09:44:58 EDT 2023

Committee Statement

Committee Statement: Delete A.15.1.4 so that the retroactivity section in Ch 15 can be deleted (which will be A.14.1.4 and Chapter 14 after chapter renumbering). It is too broad as currently worded and is not consistent with the approach the other chapters have taken.

FR-288-NFPA 660-2023

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 102-NFPA 660-2023 [Section No. 14.7.1]

14.7.1 General Requirements.

14.7.1.1

The design of the fire and deflagration safety provisions of the facility shall be based upon an analysis of the facility, the process, and the fire or deflagration hazards encompassed by the facility and process.

14.7.1.2

The design of systems and facilities that handle combustible particulate solids shall address the physical and chemical properties and hazardous characteristics of the materials in the hazard area.

14.7.1.3

The results of the facility and process analysis shall be permanently documented.

14.7.1.4

The facility and process analysis shall be reviewed and the documented results revised when the process is changed in accordance with the management-of-change criteria in Section 8.12 and 14.8.12.

14.7.1.5

The results of the process analysis shall be maintained for the life of the facility and process.

14.7.1.6

The process analysis shall include a dust hazards analysis performed in accordance with Chapter 7.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._56.pdf	NFPA 660 CC Note No. 56	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 56 appeared in the First Draft Report in NFPA 660.

(The referenced sections from Chapter 15 will be in Chapter 14 after chapter renumbering)
15.7.1 variously talks about:

- Analysis of the facility, the process, and the fire or deflagration hazards
- Facility and process analysis
- Process analysis
- Dust hazard analysis

The DHA is described as a component part of the process analysis (15.7.1.6).

The fundamentals chapters and the other commodity-specific chapters require a DHA, without mentioning a facility and process analysis, etc.

The definition of DHA in 3.3.38 states that it addresses the hazards in the process or facility.

7.1.1.2 requires that the DHA address processes and facility compartments.

15.7.1 appears to require a different type of hazard analysis in addition to the DHA, a requirement that is absent from the other commodity-specific chapters. This risks confusing the user.

The wood dust committee should clarify what the facility and process analysis is intended to accomplish beyond what the DHA is to accomplish and to justify the need for any hazard analyses supplemental to the DHA.

Related Item

- CC Note 56

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Wed Dec 20 12:35:40 EST 2023

Committee: CMD-WOO



Correlating Committee Note No. 56-NFPA 660-2023 [Section No. 15.7.1]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 08:49:46 EDT 2023

Committee Statement

Committee Statement: (The referenced sections from Chapter 15 will be in Chapter 14 after chapter renumbering)

15.7.1 variously talks about:

- Analysis of the facility, the process, and the fire or deflagration hazards
- Facility and process analysis
- Process analysis
- Dust hazard analysis

The DHA is described as a component part of the process analysis (15.7.1.6).

The fundamentals chapters and the other commodity-specific chapters require a DHA, without mentioning a facility and process analysis, etc.

The definition of DHA in 3.3.38 states that it addresses the hazards in the process or facility.

7.1.1.2 requires that the DHA address processes and facility compartments.

15.7.1 appears to require a different type of hazard analysis in addition to the DHA, a requirement that is absent from the other commodity-specific chapters. This risks confusing the user.

The wood dust committee should clarify what the facility and process analysis is intended to accomplish beyond what the DHA is to accomplish and to justify the need for any hazard analyses supplemental to the DHA.

Ballot Results

✔ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 103-NFPA 660-2023 [Section No. 14.8.10]

14.8.10 Emergency Planning and Response.

Emergency planning and response shall be in accordance with Section 8.10, NFPA 600, and NFPA 1660.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._84.pdf	NFPA 660 CC Note No. 84	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 84 appeared in the First Draft Report in NFPA 660.

Review the reference to NFPA 1660 and whether it is applicable.

Related Item

- CC Note 84

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Wed Dec 20 12:40:04 EST 2023

Committee: CMD-WOO



Correlating Committee Note No. 84-NFPA 660-2023 [Section No. 15.8.10]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 15:07:32 EDT 2023

Committee Statement

Committee Statement: Review the reference to NFPA 1660 and whether it is applicable.

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 104-NFPA 660-2023 [Section No. 14.8.11]

14.8.11* Incident Investigation.

14.8.11.1*

Once the scene has been released by the authority having jurisdiction, incident investigations shall be promptly initiated by management personnel or their designee who has a good working knowledge of the facility and processes.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._86.pdf	NFPA 660 CC Note No. 86	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 86 appeared in the First Draft Report on First Revisions No. 309 in NFPA 660.

Delete 15.8.11.1 (which will be 14.8.11.1 after Chapter renumbering) and associated annex. The associated annex material has already been proposed to be moved to Section 8.11.

Leave the annex material to 15.8.11 (which will be 14.8.11 after Chapter renumbering) in place.

Related Item

- FR No. 309

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Wed Dec 20 12:42:23 EST 2023

Committee: CMD-WOO



Correlating Committee Note No. 86-NFPA 660-2023 [Section No. 15.8.11]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 15:22:27 EDT 2023

Committee Statement

Committee Statement: Delete 15.8.11.1 (which will be 14.8.11.1 after Chapter renumbering) and associated annex. The associated annex material has already been proposed to be moved to Section 8.11.

Leave the annex material to 15.8.11 (which will be 14.8.11 after Chapter renumbering) in place.

FR-309-NFPA 660-2023

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy
Osborn, Jack E.
Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 105-NFPA 660-2023 [Section No. 14.8.12]

14.8.12* Management of Change.

Management shall implement and maintain a system to evaluate proposed changes to the facility and processes, both physical and human, for the impact on safety, loss prevention, and control.

14.8.12.1

Management of change shall include review by all relevant authorities having jurisdiction.

14.8.12.2*

Management of change shall include review of all projects involving the following:

- (1)* Occupancy and process changes involving storage configurations and heights, process equipment and materials, or rates of production
- (2)* Changes to all fire protection and alarm systems
- (3)* Exposure changes
- (4) Human element changes involving key members of loss prevention programs
- (5) New construction or modification to an existing structure

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._88.pdf	NFPA 660 CC Note No. 88	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 88 appeared in the First Draft Report in NFPA 660.

The wood dust committees should provide the Correlating Committee with a written response explaining the need for differing provisions between 15.8.12 (which will be 14.8.12 after Chapter renumbering) and the fundamental requirements in 8.12, and how they meet the same safety objectives.

Related Item

- CC Note 88

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

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City:

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Submittal Date: Wed Dec 20 12:46:17 EST 2023

Committee: CMD-WOO



Correlating Committee Note No. 88-NFPA 660-2023 [Section No. 15.8.12]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 15:52:59 EDT 2023

Committee Statement

Committee Statement: The wood dust committees should provide the Correlating Committee with a written response explaining the need for differing provisions between 15.8.12 (which will be 14.8.12 after Chapter renumbering) and the fundamental requirements in 8.12, and how they meet the same safety objectives.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

13 Affirmative All

0 Affirmative with Comments

2 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Negative with Comment

Aiken, Chris

15.8.12 provides has annex material which committee members deemed inadequate. Correlation committee should define how the differences should be explained in a process that allow committees to maintain their technical independence and not give the fundamentals committee governance over all technical matters it deems fundamental. However, the second part requiring "...how they meet the same safety objectives." would require that the fundamental committee describes how the requirement in 8.12 impacts/reduces the risk so equivalency can be determined.

Bujewski, Matthew J.

The correlating committee should not micromanage the chapter committees.



Public Comment No. 179-NFPA 660-2024 [Section No. 14.9.4.13.1]

14.9.4.13.1*

As ~~determined by a DHA when~~ When failure of a mechanical feeding device could cause significant combustible dust hazards, a method shall be provided to prevent the hazardous conditions and stop continued operation of the equipment.

Statement of Problem and Substantiation for Public Comment

The phrase "as determined by the DHA" is unnecessary for the specified requirements and is somewhat redundant. This phrase is not needed since a hazard either exists or does not and the phrase does not add anything to the requirements.

This was submitted on behalf of the Task Group on DHAs.

Related Item

- DHA Task Group - CCN 26

Submitter Information Verification

Submitter Full Name: [REDACTED]

Organization: Airdusco, Inc.

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jan 01 12:05:19 EST 2024

Committee: CMD-WOO



Public Comment No. 180-NFPA 660-2024 [Sections 14.9.4.14.12.1, 14.9.4.14.12.2]

Sections 14.9.4.14.12.1, 14.9.4.14.12.2

14.9.4.14.12.1

Where ~~required~~ determined necessary by the DHA, monitors shall be provided at head, tail, and knee pulley bearings that indicate high bearing temperature or vibration detection.

14.9.4.14.12.2

Where ~~required~~ determined necessary by the DHA, monitors shall be provided for head, tail, and knee pulley alignment and belt alignment.

Statement of Problem and Substantiation for Public Comment

"Required" should be changed to "determined necessary" by the DHA for better clarity and application of the phrase.

This was submitted on behalf of the Task Group on DHAs.

Related Item

- DHA Task Group - CCN 26

Submitter Information Verification

Submitter Full Name: [REDACTED]

Organization: Airdusco, Inc.

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jan 01 12:08:19 EST 2024

Committee: CMD-WOO



Public Comment No. 316-NFPA 660-2024 [New Section after 14.9.9.7.7]

14.10 Emergency Planning and Manual Firefighting

14.10.1 The facility shall reply with the requirements of Chapter 10

Statement of Problem and Substantiation for Public Comment

Adding reference to new chapter 10 firefighting requirements in commodity and industry specific chapters.

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 225-NFPA 660-2024 [Chapter 10]	
Public Comment No. 312-NFPA 660-2024 [New Section after 12.10.1.2.2]	
Public Comment No. 309-NFPA 660-2024 [New Section after 11.9.9.5]	
Public Comment No. 314-NFPA 660-2024 [New Section after 13.9.9.5.2.3]	
Public Comment No. 317-NFPA 660-2024 [New Section after 15.9.10.2]	

Related Item

- Correlating Committee Note and Task Group

Submitter Information Verification

Submitter Full Name: [REDACTED]
Organization: Exponent, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jan 04 16:38:45 EST 2024
Committee: CMD-WOO



Public Comment No. 106-NFPA 660-2023 [Section No. 14.10]

14.10 Thermal Oil Heating Systems.

14.10.1* Hazard Determination and Design Criteria.

Thermal oil heating systems shall be designed, operated, and maintained such that risk of thermal oil spills is minimized, and any fires or explosions resulting from thermal oil spills are extinguished or controlled in a manner that will not cause unacceptable property damage or interruption of production, or unacceptable risk to operating personnel or the public at large.

14.10.1.1

The hazard posed by the thermal oil system, when the oil is used as heat transfer fluid (HTF), shall be determined on the basis of the largest most credible spill quantity of thermal oil, taking into account the following:

- (1)* Total quantity of thermal oil in the system
- (2)* Flow rate of thermal oil through system loops
- (3)* System instrumentation and alarm features that would detect loss of fluid from the system
- (4)* System automatic controls and interlocks, and/or presence of trained operators, that can reliably shut down pumping and/or isolate portions of the system to limit the amount of thermal oil spilled
- (5)* Spatial orientation of thermal oil piping and system components that would allow isolated portions of the system to drain their trapped quantities of thermal oil by gravity

14.10.1.2*

The hazards analysis shall define the location, size, and extent of the maximum most credible thermal oil spill, taking into account the following:

- (1) Diversion of a spill due to floor or ground slope
- (2) Containment of a spill by pits, curbs, and dikes
- (3) Relocation of a spill from the immediate area by drains

14.10.1.3

The hazards analysis shall define the fire intensity and duration of the maximum most credible thermal oil spill defined from the analyses in 14.10.1.1 and 14.10.1.2, taking into account the following:

- (1) Rate at which oil will be spilled
- (2) Rate at which oil will drain away
- (3)* Rate at which oil will be consumed during burning
- (4) Heat release rate of the oil spill fire

14.10.1.4

The hazards analysis shall determine the extent of property damage, loss of production, and risk of injury to operating personnel or the public at large from a fire involving the maximum most credible thermal oil spill, taking into account the following:

- (1) Fire resistance of the exposed equipment or structures
- (2) Presence and adequacy of automatic sprinklers or other special extinguishing systems for the duration of the fire
- (3) Presence of fire alarms and means of egress from the vicinity of the fire

14.10.1.5

For vaporizing thermal oil systems, the risk analysis shall additionally determine the extent of property damage, loss of production, and risk of injury to operating personnel or the public at large from a room explosion involving the sudden release of thermal oil vapor or thermal oil heated above its atmospheric boiling point.

14.10.2* General Criteria.

Thermal oil shall not be permitted to be pumped throughout a facility to provide building heat except under one of the following conditions:

- (1) All thermal oil piping and points of connection to valves, heat exchangers, or other equipment have welded connections.
- (2) Areas where mechanical joints for thermal oil piping exist are protected with a sprinkler system designed to control a fire in the largest credible thermal oil spill.

14.10.3 Location and Construction.**14.10.3.1**

Thermal oil heaters shall be physically separated from adjacent manufacturing areas by locating them in one of the following areas (in order of preference):

- (1) Outdoors where drainage is certain to be away from a building
- (2) In a detached building
- (3) In a building attached to an outside wall of the manufacturing building with the common wall having a 1-hour fire rating
- (4) In a cutoff room at an outside wall of the main production building with the three interior walls having a 1-hour fire rating

14.10.3.2

Nonvaporizing thermal oil heaters with an oil capacity less than 500 gal (1893 L) shall be permitted in manufacturing areas if an oil spill at the heater is controlled according to 14.10.3.3.

14.10.3.3*

A vaporizing thermal oil heater shall be located pursuant to the following:

- (1) In compliance with 14.10.3.1
- (2) In a room or building housing having damage-limiting construction to vent an explosion toward a safe area

14.10.3.4

Curbs, dikes, or floor slope combined with drainage to a safe location shall be provided around indoor thermal oil system components (e.g., storage tanks and pump heat exchangers).

14.10.3.5

Drainage shall not be required when an automatic sprinkler system designed and installed in accordance with NFPA 13 is provided over the containment area and the containment area is designed to hold the largest credible oil spill plus 20 minutes of sprinkler discharge.

14.10.3.6*

Where the utilization of ground slope will not increase hazard, ground slope shall be provided under outdoor thermal oil system components that utilize nonwelded mechanical connections to thermal oil circulation piping to divert oil spills to a safe location away from the thermal oil equipment or adjacent buildings.

14.10.3.7*

Process control rooms, which are expected to be manned in an emergency, shall be separated from the thermal oil utilization equipment by 1-hour fire-rated construction.

14.10.3.8

At least one path of egress from the control room shall be through an area not susceptible to a fire involving thermal oil.

14.10.4 Heaters.**14.10.4.1**

Heaters operating at gauge pressures exceeding 15 psi (103 kPa) shall be designed and operated in conformance with the *ASME Boiler and Pressure Vessel Code*.

14.10.4.2*

Pressure relief devices, when provided, shall be piped to discharge oil or vapor to a safe location.

14.10.4.3

Fire detection systems, fire extinguishing systems, or both for an internal heater fire shall be in accordance with Chapter 9.

14.10.5 Piping.**14.10.5.1***

Piping shall be securely supported to maintain adequate clearance from combustible construction or other combustible materials.

14.10.5.2*

Welded pipe connections shall be used throughout a thermal oil piping system.

14.10.5.3

Bolted mechanical joints shall be permitted to be used at pumps, valves, and equipment connections where the following conditions are met:

- (1) Mechanical joints are protected with a sprinkler system designed to control a fire involving the largest credible thermal oil spill.
- (2) Mechanical joints are insulated and shielded to prevent a leak from becoming a spray fire, and the shielding has a drip hole at the low point to facilitate detection of leaking joints.

14.10.5.4*

Where necessary to reduce the largest credible thermal oil spill to an acceptable level, provisions shall be made to isolate the supply and return piping to and from utilization equipment.

14.10.5.5

Copper, cast iron, or plastic piping shall not be used.

14.10.5.6

For systems operating above gauge pressures of 15 psi (103 kPa), pipe materials and types shall be in accordance with ANSI/ASME B31.1, *Power Piping*, or ASME B31.3, *Process Piping*, as applicable.

14.10.5.7*

Piping that is routed through production areas where airborne wood particulate can collect on thermal oil piping shall be insulated to keep surface temperatures below the maximum permitted by 9.4.3.1.

14.10.6 Expansion Tank.**14.10.6.1***

Where used as other than an atmospheric tank, expansion tanks shall be designed in accordance with Section VIII of the ASME *Boiler and Pressure Vessel Code*.

14.10.6.2*

Expansion tanks that have a breather vent, overflow drain, or pressure relief valve shall have the discharge from these openings piped to a safe location.

14.10.6.3*

When necessary to reduce the largest credible thermal oil spill to an acceptable level, the expansion tank shall be provided with a remotely operable drain line that allows the expansion tank to be drained to a safe location.

14.10.6.4*

An automatic expansion tank refill system to maintain the thermal oil level in the expansion tank shall not be permitted.

14.10.6.5*

Expansion tanks on vaporizing systems or on nonvaporizing systems that heat the oil to within 50 degrees of its atmospheric boiling point shall be provided with an inert gas blanket in the expansion tank vapor space.

14.10.6.5.1

The inert gas blanket shall operate at a pressure between 15 psi and 25 psi (103 kPa and 172 kPa) above the vapor pressure of the heated oil.

14.10.6.5.2

A low-pressure interlock shall be provided that will shut off the heater fuel source if the inert gas pressure drops to less than 15 psi (103 kPa) above the hot oil vapor pressure.

14.10.7* Storage Tanks.

Both indoor and outdoor aboveground thermal oil storage tanks shall be constructed, located, and arranged in accordance with NFPA 30.

14.10.8 Safety Controls and Interlocks.**14.10.8.1***

All thermal oil systems shall have emergency shutdown and isolation devices in accordance with 14.10.8.1.1 through 14.10.8.1.4.

14.10.8.1.1

Systems that limit the largest credible thermal oil spill shall be interlocked to actuate when any one of the following conditions exist:

- (1) Automatic sprinkler system water flow in any area containing thermal oil heaters, pumps, utilization equipment, or thermal oil piping that is not fully welded at all connecting joints
- (2) Activation of a fire detection system in any area containing thermal oil heaters, pumps, utilization equipment, or thermal oil piping that is not fully welded at all connecting joints
- (3) Activation of the thermal oil leak detection system

14.10.8.1.2

Where an area is equipped with both a fire detection system and an automatic sprinkler system, only one of these shall be required to activate the automatic shutdown and isolation.

14.10.8.1.3

Where an area equipped with fire detection, sprinkler water flow, or thermal oil loss can be positively identified by the arrangement and/or control system of the detection devices, only those automatic shutdown and isolation devices required to stop thermal oil flow into and out of the affected area shall be required to be interlocked for automatic actuation.

14.10.8.1.4

Where an area subject to a thermal oil spill is under constant observation by operators or personnel who are trained to respond and have access authority to manually activate the required thermal oil system shutdown and isolation, then automatic shutdown by sprinkler water flow shall not be required for that area.

14.10.8.2*

An accessible, manual, remote emergency shutoff switch shall be provided that is capable of safely shutting down and isolating the heat transfer system in the configuration required to limit the largest credible thermal oil spill.

14.10.9 Fuel Burner Controls and Interlocks.**14.10.9.1**

Oil or gas-fired heaters shall be designed and installed in accordance with the applicable requirements of NFPA 85.

14.10.9.2

Wood dust suspension burners shall be designed and installed in accordance with the applicable requirements of NFPA 85.

14.10.9.3*

Heaters that burn wood waste in a fluidized bed or on a grate shall provide a means to prevent the accumulation of explosible concentrations of combustibles in the heater or in any stack gas utilization equipment, following a shutdown with unburned fuel in the heater.

14.10.9.4*

If stack gas from the thermal oil heater is recovered to provide auxiliary base load heat for other equipment (e.g., rotary dryers), a means shall be provided to ensure that all equipment is properly purged prior to an attempt being made to ignite a burner on any of the interconnected equipment.

14.10.9.4.1

Temperature and pressure monitoring shall be required for dryer exhaust recirculation into the thermal oil heater.

14.10.9.4.2

Temperature and pressure monitoring shall be required for flue gas recycling into the thermal oil heater.

14.10.9.5

Where solid fuel central energy systems provide hot air stream to more than one user, one of which is a thermal oil heating system, they shall be permitted to be designed to reduce the hot air stream feeding the thermal oil heating system, without the need to shut down the fuel source.

14.10.9.6*

Instrumentation and interlocks shall be provided to sound an alarm and automatically shut off the fuel source or the heat source to the thermal oil heater when any of the following conditions are detected:

- (1) Low thermal oil flow or pressure at the heater outlet
- (2) High thermal oil temperature or pressure at the heater outlet
- (3) Low oil level in expansion tank and, if provided, any other signal indicating loss of thermal oil from the system
- (4) Low liquid thermal oil level in heater (vaporizing systems only)
- (5) Activation of a fire detection system, extinguishing system, or both, for the heater heat exchanger, if provided

14.10.10 Operational Considerations.**14.10.10.1**

Any and all system leaks that are discovered shall be promptly corrected with permanent repairs, regardless of the size of the leak.

14.10.10.2

Any spilled oil shall be cleaned up promptly.

14.10.10.3

Any pipe or equipment insulation that is discovered to be oil-soaked shall be promptly removed and replaced with clean, oil-free insulation.

14.10.10.4*

If it is suspected that the material being heated is infiltrating into the thermal oil loop, the system shall be immediately shut down to find and repair the leakage.

14.10.10.5*

Operators shall be trained at least annually in proper operation of the thermal oil system, including recognition and proper response to upset conditions that could lead to dangerous situations.

14.10.10.6

Safety interlocks shall be inspected, tested, and calibrated at least annually to keep them in proper operating condition.

14.10.10.7*

The physical properties of the thermal oil shall be tested and documented annually, with replacement of all oil in the system when recommended by the oil manufacturer.

14.10.11* Fire Protection.**14.10.11.1**

Automatic sprinkler protection meeting the requirements of NFPA 13 for Extra Hazard Group 1 occupancies shall be provided for building areas containing heat transfer system heaters, vaporizers, equipment using thermal oil, plenums, or any other areas where a hot oil spill could accumulate.

14.10.11.2*

Heaters shall be provided with a means to detect and automatically extinguish a thermal oil spill fire in the fire box or heat exchanger section where spilled oil would collect unless the system complies with one of the following:

- (1) Systems contain less than 2000 gal (7571 L) of thermal oil, subject to a risk analysis that is acceptable to the authority having jurisdiction.
- (2) Heaters have a fire detection system interlocked to physically isolate the heater from the external thermal oil piping.
- (3) Instrumentation is present to alert operators of an oil fire in the heater and operators constantly monitor conditions in the heater and are trained to actuate a manual extinguishing system.

14.10.11.3*

Activation of a heater fire extinguishing system shall automatically stop the primary thermal oil circulation pumps unless the system complies with both of the following:

- (1) The heater contains a bed of wood waste fuel or the refractory inside the heater can retain enough heat to cause thermal oil breakdown and tube fouling if fluid circulation through the unit is stopped.
- (2) The primary loop system has an emergency bypass with an oil cooling heat exchanger to rapidly reduce oil temperature.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._46.pdf	NFPA 660 CC Note No. 46	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No.46 appeared in the First Draft Report in NFPA 660.

Consider removal of section 15.10, Thermal Oil Heating Systems (which will become 14.10 after chapter renumbering), if it is added to NFPA 30.

Related Item

- CC Note 46

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org
Organization: Notes
Street Address:
City:
State:
Zip:
Submittal Date: Wed Dec 20 12:48:37 EST 2023
Committee: CMD-WOO



Correlating Committee Note No. 46-NFPA 660-2023 [Section No. 15.10]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 17:12:36 EDT 2023

Committee Statement

Committee Statement: Consider removal of section 15.10, Thermal Oil Heating Systems (which will become 14.10 after chapter renumbering), if it is added to NFPA 30.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

0 Affirmative with Comments

1 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Aiken, Chris

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Negative with Comment

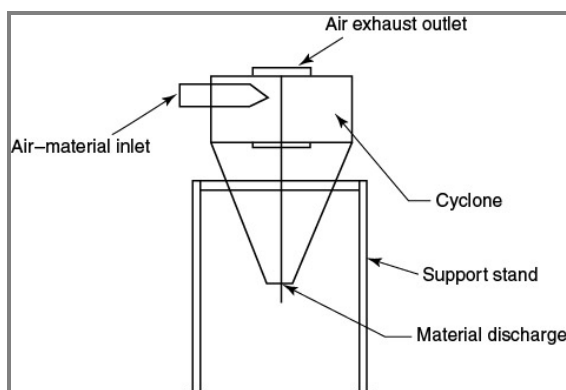
Bujewski, Matthew J.

This is the problem with writing just a combustible dust standard. The industry specific standards covered fire and dust which may include other hazards besides combustible dust. Where is the industry going to find guidance on specific equipment and processes for its industry if it is not in the industry specific chapter? If this is removed, then the chapter should point to some other standard for guidance.

**Public Comment No. 119-NFPA 660-2023 [Section No. A.3.3.24]****A.3.3.24 – Cyclone. –**

One example of a typical cyclone is shown in Figure A.3.3.24. There are other acceptable configurations. (CMD-WOO)

Figure A.3.3.24 A Typical Cyclone.

**Statement of Problem and Substantiation for Public Comment**

3.3.24 Cyclone has been moved to 3.3.5.1 and new annex material has been added per TG
Move the image to A.3.3.5.1 as indicated there.

Related Item

- FD report

Submitter Information Verification

Submitter Full Name: [REDACTED]
Organization: Nederman LLC
Street Address:
City:
State:
Zip:
Submittal Date: Tue Dec 26 16:35:39 EST 2023
Committee: CMD-WOO



Public Comment No. 243-NFPA 660-2024 [Section No. A.3.3.27]

A.3.3.27 – Deflagration Hazard. –

A hazard is usually determined to exist where either of the two following conditions is present:

- (1) Deflagrable dust is present as a layer on upward-facing surfaces at a depth greater than that permitted in Chapters 11 , 12 , 15 , 13 , and 14 .
- (2) Deflagrable dust is suspended in the air at a concentration in excess of 25 percent of the MEC under normal operating conditions.

Since a deflagration is a rapid propagation of a flame front through a fuel-air mixture, a deflagration can result in widespread ignition of combustibles, thermal burns to occupants, and severe structural damage to the building, including fire and building collapse. (CMD-WOO)

Statement of Problem and Substantiation for Public Comment

This is replaced by A.3.3.38.

Related Public Comments for This Document

<u>Related Comment</u>	<u>Relationship</u>
Public Comment No. 232-NFPA 660-2024 [New Section after 3.3]	
<u>Related Item</u>	
• This is a revision to the new Appendix A	

Submitter Information Verification

Submitter Full Name: [REDACTED]
Organization: FM Global
Street Address:
City:
State:
Zip:
Submission Date: Thu Jan 04 12:06:02 EST 2024
Committee: CMD-WOO

The following items have been assigned to another Technical Committee but are being provided for this committee's review.



Public Comment No. 117-NFPA 660-2023 [Global Input]

Replace the term "megohms per square" with "megaohms per square", and provide in parentheses the value in secondary units of ohms per square using scientific notation.

For example, the phrase "300 megohms per square" would become "300 megaohms per square (3 x 10⁸ ohms per square)

Statement of Problem and Substantiation for Public Comment

This change would standardize the terminology for surface resistivity measurements throughout the document. Both megaohm and megohm are found to be in common use, the term megaohm was selected as it uses the proper SI prefix. This was the result of a task group effort.

While the defined unit for surface resistivity is ohms per square, some equipment manufacturers use units of megaohms per square when describing the resistivity of belts for material handling.

An alternative approach would be to use the SI unit ohms per square as the primary unit, with megaohms per square as the secondary (parenthetical) unit.

Related Item

- FR-221

Submitter Information Verification

Submitter Full Name: [REDACTED]

Organization: DuPont

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City:

State:

Zip:

Submittal Date: Fri Dec 22 09:29:57 EST 2023

Committee: CMD-FUN



Public Comment No. 12-NFPA 660-2023 [Global Input]

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._1.pdf	NFPA 660 CC Note No. 1.	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No 1. appeared in the First Draft Report in NFPA 660.

Review the terminology for fundamental, core, basic requirements. The preferred term is "fundamental

Related Item

- CC Note No. 1

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 10:37:04 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 1-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 08:37:59 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: Review the terminology for fundamental, core, basic requirements. The preferred term is "fundamental".

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 13-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._11.pdf	NFPA CC Note No. 11	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 11 appeared in the First Draft Report in NFPA 660.

The Correlating Committee has formed a task group to review the definitions that are attributed to the Technical Committees other than CMD-FUN and determine if they should be applied fundamentally. If a Technical Committee believes that any definitions should remain specific to their chapter, they should make this known to the task group.

Related Item

- CC Note 11

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 10:58:54 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 11-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 10:13:17 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: The Correlating Committee has formed a task group to review the definitions that are attributed to the Technical Committees other than CMD-FUN and determine if they should be applied fundamentally. If a Technical Committee believes that any definitions should remain specific to their chapter, they should make this known to the task group.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 14-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._16.pdf	NFPA CC Note No. 16	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No.16 appeared in the First Draft Report in NFPA 660.

A task group is reviewing the definitions associated with the various types of AMS/Dust Collectors/Cyclones to determine if any revisions are needed.

Related Item

- CC Note No. 16

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 11:03:21 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 16-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 11:27:07 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: A task group is reviewing the definitions associated with the various types of AMS/Dust Collectors/Cyclones to determine if any revisions are needed.

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 15-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._2.pdf	NFPA CC Note No. 2	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No 2. appeared in the First Draft Report in NFPA 660.

When referring to fundamental requirements, the reference should be to "Chapters 1 through 9" not "Chapters 1 through 10", as Chapter 10 is reserved at this time.

Each chapter should leave X.10 reserved for potential future use, and renumber sections accordingly.

Related Item

- CC Note 2.

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 11:09:01 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 2-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 08:45:53 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: When referring to fundamental requirements, the reference should be to "Chapters 1 through 9" not "Chapters 1 through 10", as Chapter 10 is reserved at this time.

Each chapter should leave X.10 reserved for potential future use, and renumber sections accordingly.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 16-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._22.pdf	NFPA CC Note No. 22	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 22 appeared in the First Draft Report in NFPA 660.

A task group is reviewing the various definitions for hazard and hazard areas:

- 3.3.27 Deflagration Hazard (CMD-WOO)
- 3.3.28 Deflagration Hazard Area (heading only)
- 3.3.28.1 Dust Explosion Hazard Area (CMD-HAP)
- 3.3.28.2 Dust Flash Fire Hazard Area (CMD-HAP)
- 3.3.37 Dust Explosion Hazard (CMD-FUN)
- 3.3.43 Explosion Hazard (CMD-WOO) (points to 3.3.37 Dust Explosion Hazard only)
- 3.3.47 Fire Hazard (CMD-FUN)

Related Item

- CC Note No. 22

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 11:13:15 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 22-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 13:17:35 EDT 2023

Committee Statement and Meeting Notes

Committee Statement:	A task group is reviewing the various definitions for hazard and hazard areas:
	3.3.27 Deflagration Hazard (CMD-WOO)
	3.3.28 Deflagration Hazard Area (heading only)
	3.3.28.1 Dust Explosion Hazard Area (CMD-HAP)
	3.3.28.2 Dust Flash Fire Hazard Area (CMD-HAP)
	3.3.37 Dust Explosion Hazard (CMD-FUN)
	3.3.43 Explosion Hazard (CMD-WOO) (points to 3.3.37 Dust Explosion Hazard only)
	3.3.47 Fire Hazard (CMD-FUN)

Ballot Results

✔ This item has passed ballot

18 Eligible Voters
3 Not Returned
13 Affirmative All
2 Affirmative with Comments
0 Negative with Comments
0 Abstention

Not Returned

Davis, Scott G.
Krbec, Jason
Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.
Creswell, Gregory F.
Edwards, Brian
Frank, Walter L.

Kimbell, Kevin
LaPine, Edward R.
LeBlanc, John A.
Mattos, Jr., Arthur P.
Miller, Jeremy
Osborn, Jack E.
Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok

Cholin, John M.

As I continue in the effort to develop annex text to support the requirement in Section 8.6.1, I become more convinced that precise definitions distinguishing between a "flash fire" producing effects that can be managed with FRG, from a building compartment deflagration, producing effects that exceed the protective capacity of FRG, are critical.



Public Comment No. 17-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._24.pdf	NFPA CC Note No. 24	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 24 appeared in the First Draft Report in NFPA 660.

A task group is reviewing the various sections on filtering air that is returned inside the building or to air makeup systems (for example, 9.4.4.7, 11.9.4.4.7, 15.9.4.4.7) to clarify how to determine what filtration media will meet these requirements. Chapter 11 has g/m3, other chapters have requirements based on % of MEC.

Related Item

- CC Note No. 24

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 11:16:33 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 24-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 13:34:15 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: A task group is reviewing the various sections on filtering air that is returned inside the building or to air makeup systems (for example, 9.4.4.7, 11.9.4.4.7, 15.9.4.4.7) to clarify how to determine what filtration media will meet these requirements. Chapter 11 has g/m3, other chapters have requirements based on % of MEC.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 18-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._26.pdf	NFPA 660 CC Note. 26	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No 26. appeared in the First Draft Report in NFPA 660.

A task group is reviewing the use of "supported by a DHA, authorized by a DHA, permitted by a DHA, determined by a DHA, etc" throughout the standard and discuss what authority is given to the DHA author. Additionally, the task group will clarify the purpose of the DHA and risk assessment within the standard.

Related Item

- CC Note 26

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 11:27:00 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 26-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 14:11:49 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: A task group is reviewing the use of "supported by a DHA, authorized by a DHA, permitted by a DHA, determined by a DHA, etc" throughout the standard and discuss what authority is given to the DHA author. Additionally, the task group will clarify the purpose of the DHA and risk assessment within the standard.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 19-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._50.pdf	NFPA CC Note 50	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No 50. appeared in the First Draft Report in NFPA 660.

The following statement should be added to Chapter 1 and deleted from the industry and commodity-specific chapters: 13.1.1.4

The owner/operator shall be responsible for implementing the requirements in this chapter.

Related Item

- CC Note 50

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 11:31:44 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 50-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 07:18:38 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: The following statement should be added to Chapter 1 and deleted from the industry- and commodity-specific chapters:

13.1.1.4

The owner/operator shall be responsible for implementing the requirements in this chapter.

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

12 Affirmative All

2 Affirmative with Comments

1 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok

Bujewski, Matthew J.

Agree with Mr. Cholin

Negative with Comment

Cholin, John M.

The text should refer to the whole standard, not just the chapter.



Public Comment No. 20-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._21.pdf	NFPA 660 CC Note 21	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No 21. appeared in the First Draft Report in NFPA 660.

A task group is reviewing resistivity as referenced in the bucket elevator and conveyor sections (300 megohms per square) for consistency, and the use of ohms rather than megohms, consistent with the definitions.

Related Item

- CC Note 21

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Mon Dec 11 11:44:42 EST 2023

Committee: CMD-AGR



Correlating Committee Note No. 21-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 13:04:02 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: A task group is reviewing resistivity as referenced in the bucket elevator and conveyor sections (300 megohms per square) for consistency, and the use of ohms rather than megohms, consistent with the definitions.

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 22-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._3.pdf	NFPA 660 CC Note No. 3	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 3 appeared in the First Draft Report in NFPA 660.

Industry- or commodity- specific chapters should not be referencing sections from other industry- or commodity-specific chapters. Industry- and commodity-specific chapters should pull in applicable language. For example, 14.8.5.2 should pull in applicable language from Chapter 13. (which will be 13.8.5.2 and Chapter 15 after Chapter renumbering)

Related Item

- CC Note 3

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Tue Dec 12 09:39:51 EST 2023

Committee: CMD-AGR



Correlating Committee Note No. 3-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 09:11:55 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: Industry- or commodity- specific chapters should not be referencing sections from other industry- or commodity-specific chapters. Industry- and commodity-specific chapters should pull in applicable language. For example, 14.8.5.2 should pull in applicable language from Chapter 13. (which will be 13.8.5.2 and Chapter 15 after Chapter renumbering)

Ballot Results

✓ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 23-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._45.pdf	NFPA 660 CC Note No. 45	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 45 appeared in the First Draft Report in NFPA 660.

In chapters 11, 12, 13, 14, and 15, clarify which requirements differ from the fundamentals requirements and where there are conflicts that should take precedence. This would distinguish between requirements that apply "in addition to" fundamentals requirements vs. "instead of".

Sample language:

The requirement in [industry- or commodity-specific section] shall be permitted to be used in lieu of those in [fundamentals section].
OR

In lieu of [fundamentals section], _____.

Related Item

- CC Note No. 45

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Tue Dec 12 10:00:10 EST 2023

Committee: CMD-AGR



Correlating Committee Note No. 45-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Tue Aug 15 16:57:56 EDT 2023

Committee Statement

Committee Statement: In chapters 11, 12, 13, 14, and 15, clarify which requirements differ from the fundamentals requirements and where there are conflicts that should take precedence. This would distinguish between requirements that apply "in addition to" fundamentals requirements vs. "instead of".

Sample language:

The requirement in [industry- or commodity-specific section] shall be permitted to be used in lieu of those in [fundamentals section].

OR

In lieu of [fundamentals section], _____.

Ballot Results

✔ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.
LeBlanc, John A.
Mattos, Jr., Arthur P.
Miller, Jeremy
Osborn, Jack E.
Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 24-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._53.pdf	NFPA 660 CC Note No. 53	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 53 appeared in the First Draft Report in NFPA 660.

Each committee should review their chapters and replace "chapter" with the appropriate descriptor (section) throughout the standard. For example:

14.11.1.1

This chapter shall apply to liquid sulfur and its vapors when heated in closed containers to temperatures above 309°F (154°C). (which will be 13.11.1.1 after Chapter renumbering)

Related Item

- CC Note No. 53

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Tue Dec 12 10:03:26 EST 2023

Committee: CMD-AGR



Correlating Committee Note No. 53-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 07:39:53 EDT 2023

Committee Statement

Committee Statement: Each committee should review their chapters and replace “chapter” with the appropriate descriptor (section) throughout the standard.

For example:

14.11.1.1

This chapter shall apply to liquid sulfur and its vapors when heated in closed containers to temperatures above 309°F (154°C).

(which will be 13.11.1.1 after Chapter renumbering)

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.
Mattos, Jr., Arthur P.
Miller, Jeremy
Osborn, Jack E.
Pedersen, Niels H.
Roberts, Jeffrey R.
Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris
ok



Public Comment No. 25-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._60.pdf	NFPA 660 CC Note No. 60	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 60 appeared in the First Draft Report in NFPA 660.

All industry- and commodity-specific chapters should consider deleting the retroactivity statements for housekeeping requirements because it is already covered by 8.1.

If these statements are needed because of additional housekeeping requirements in these individual chapters, then they may need to keep these statements but explain that X.8.4 applies retroactively in addition to what is in Chapter 8.

For example:

12.8.4.1.1 Retroactivity.

The requirements this chapter shall apply to new and existing facilities.

14.8.4 Housekeeping.

The requirements of 14.8.4 shall be applied retroactively.

(which will be 13.8.4 after Chapter renumbering)

Related Item

- CC Note 60

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Tue Dec 12 14:21:41 EST 2023

Committee: CMD-AGR



Correlating Committee Note No. 60-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 09:34:55 EDT 2023

Committee Statement

Committee Statement: All industry- and commodity-specific chapters should consider deleting the retroactivity statements for housekeeping requirements because it is already covered by 8.1.

If these statements are needed because of additional housekeeping requirements in these individual chapters, then they may need to keep these statements but explain that X.8.4 applies retroactively in addition to what is in Chapter 8.

For example:

12.8.4.1.1 Retroactivity.

The requirements this chapter shall apply to new and existing facilities.

14.8.4 Housekeeping.

The requirements of 14.8.4 shall be applied retroactively.

(which will be 13.8.4 after Chapter renumbering)

Ballot Results

✓ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 26-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._61.pdf	NFPA 660 CC Note No 61.	✓

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 61 appeared in the First Draft Report in NFPA 660.

The Agricultural, Metal, and Wood committees should provide the Correlating Committee with a written response explaining the need for differing provisions between X.8.4.2.6 and Chapter 8 for Compressed Air Blowdown Method.

Related Item

- CC Note 61

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org
Organization: Notes
Street Address:
City:
State:
Zip:
Submission Date: Tue Dec 12 14:38:05 EST 2023
Committee: CMD-AGR

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Correlating Committee Note No. 61-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 09:47:27 EDT 2023

Committee Statement

Committee Statement: The Agricultural, Metal, and Wood committees should provide the Correlating Committee with a written response explaining the need for differing provisions between X.8.4.2.6 and Chapter 8 for Compressed Air Blowdown Method.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

13 Affirmative All

0 Affirmative with Comments

2 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Negative with Comment

Aiken, Chris

11.8.4.2.6 provides in the annex explanation of the difference which committee members deemed inadequate. Correlation committee should define how the differences should be explained in a process that allow committees to maintain their technical independence and not give the fundamentals committee governance over all technical matters it deems fundamental.

Bujewski, Matthew J.

Agree with Mr. Aiken



Public Comment No. 27-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._69.pdf	NFPA 660 CC Note No 69.	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No 69. appeared in the First Draft Report in NFPA 660.

The industry- and commodity-specific chapters should be reviewed to clarify if each of the requirements in X.8.7 apply in addition to or in lieu of the requirements in 8.7.

Related Item

- CC Note 69

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

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Submittal Date: Tue Dec 12 14:42:03 EST 2023

Committee: CMD-AGR



Correlating Committee Note No. 69-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 11:30:41 EDT 2023

Committee Statement

Committee Statement: The industry- and commodity-specific chapters should be reviewed to clarify if each of the requirements in X.8.7 apply in addition to or in lieu of the requirements in 8.7.

Ballot Results

✔ **This item has passed ballot**

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 29-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._90.pdf	NFPA 660 CC Note No. 90	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 90 appeared in the First Draft Report in NFPA 660.

Where an commodity or industry specific chapter adopts a requirement in lieu of a fundamental requirement in Chapters 1 through 9, that committee shall document in the annex, how its substitute requirement provides equivalent life-safety for the facility occupants to the fundamental requirement it replaces.

Related Item

- CC Note 90

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

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City:

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Zip:

Submittal Date: Wed Dec 13 09:24:13 EST 2023

Committee: CMD-AGR



Correlating Committee Note No. 90-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 16:05:58 EDT 2023

Committee Statement and Meeting Notes

Committee Statement: Where an commodity or industry specific chapter adopts a requirement in lieu of a fundamental requirement in Chapters 1 through 9, that committee shall document in the annex, how its substitute requirement provides equivalent life-safety for the facility occupants to the fundamental requirement it replaces.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

0 Affirmative with Comments

1 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Negative with Comment

Aiken, Chris

I agree with the first part of the CN note that explanation for the differences needs to be explained in the annex. However, the second part requiring "...how its substitute requirement provides equivalent life-safety for the facility occupants to the fundamental requirement it replaces..." would require that the fundamental committee describes how each requirement impacts/reduces the risk so equivalency can be determined.



Public Comment No. 30-NFPA 660-2023 [Global Input]

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Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._93.pdf	NFPA 660 CC Note No. 93	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No.93 appeared in the First Draft Report in NFPA 660.

Clarify the use of "Reserved" in A.1.3, or replace the term "Reserved" with language such as a reference back to the Fundamentals section or "Refer to Fundamentals."

Create a pointer to A.1.3 in Chapter 1 and at the beginning of each industry- or commodity-specific chapter to ensure that users are aware of the guidance in A.1.3.

Related Item

- CC Note 93

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

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City:

State:

Zip:

Submittal Date: Wed Dec 13 09:26:38 EST 2023

Committee: CMD-FUN



Correlating Committee Note No. 93-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 16:53:29 EDT 2023

Committee Statement

Committee Statement: Clarify the use of "Reserved" in A.1.3, or replace the term "Reserved" with language such as a reference back to the Fundamentals section or "Refer to Fundamentals."

Create a pointer to A.1.3 in Chapter 1 and at the beginning of each industry- or commodity-specific chapter to ensure that users are aware of the guidance in A.1.3.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 31-NFPA 660-2023 [Global Input]

Type your content here ...

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
660_CCN_No._94.pdf	NFPA 660 CC Note No. 94	

Statement of Problem and Substantiation for Public Comment

NOTE: The following CC Note No. 94 appeared in the First Draft Report in NFPA 660.

Industry- and commodity-specific committees should consider the need for implementation timelines for fundamental requirements new to their industry.

Related Item

- CC Note 94

Submitter Information Verification

Submitter Full Name: ccnotes@nfpa.org

Organization: Notes

Street Address:

City:

State:

Zip:

Submittal Date: Wed Dec 13 09:30:01 EST 2023

Committee: CMD-AGR



Correlating Committee Note No. 94-NFPA 660-2023 [Global Input]

Submitter Information Verification

Committee: CMD-AAC

Submittal Date: Wed Aug 16 17:01:24 EDT 2023

Committee Statement

Committee Statement: Industry- and commodity-specific committees should consider the need for implementation timelines for fundamental requirements new to their industry.

Ballot Results

✔ This item has passed ballot

18 Eligible Voters

3 Not Returned

14 Affirmative All

1 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Davis, Scott G.

Krbec, Jason

Kreitman, Kevin

Affirmative All

Bujewski, Matthew J.

Cholin, John M.

Creswell, Gregory F.

Edwards, Brian

Frank, Walter L.

Kimbell, Kevin

LaPine, Edward R.

LeBlanc, John A.

Mattos, Jr., Arthur P.

Miller, Jeremy

Osborn, Jack E.

Pedersen, Niels H.

Roberts, Jeffrey R.

Slaunwhite, Jeramy

Affirmative with Comment

Aiken, Chris

ok



Public Comment No. 82-NFPA 660-2023 [Section No. 3.3.5]

3.3.5* Air-Material Separator (AMS). ~~A device designed to separate the conveying air from the material being conveyed. (CMD-FUN)~~

3.3.5.1 – Enclosureless AMS.

~~An air-material separator designed~~

~~* Cyclone. A device which uses geometry (i.e., shape) and centrifugal force to separate material from the conveying air/gas flow. (CMD-WOO)~~

3.3.5.2* Dust Collector. ~~A device that uses filter media to separate the conveying air/gas from the material being conveyed. (CMD-HAP)~~

3.3.5.3* Filter Receiver. ~~A dust collector designed for a higher pressure/vacuum and higher material flow rate.~~

3.3.5.4* Scrubber. ~~A device that uses liquid to separate the conveying air /gas from the material being conveyed~~

~~where the filter media are not enclosed or in a container~~

~~:~~

3.3.5.5* Electrostatic Precipitator. ~~A device that utilizes differences in electrical charges to remove fine particulates from the air/gas stream.~~

3.3.5.6* Final Filter. ~~A device used as a separation device to increase filtration efficiency~~

3.3.5.7* Enclosureless AMS. ~~A device using filter media for air and material separation but without any physical enclosure of the filter media. (CMD-FUN)~~

3.3.5.8 Dry-Type Air Material Separator (AMS). ~~See 3.3.5.2 Dust Collector (CMD-FUN)~~

3.3.5.9 Media Collector. ~~See 3.3.5.2 Dust Collector (CMD-CMM)~~

3.3.5.10 Wet-Type Air Material Separator. ~~See 3.3.5.4 Scrubber. (CMD-FUN)~~

3.3.5.11 Point-of-Use Dust Collector. ~~A bin vent-type of dust collector with an integral AMD used to create negative pressure on enclosed conveying equipment. (CMD-AGR)~~

3.3.5.12 Portable Air Material Separator (AMS). ~~A portable device used as a dust collector . (CMD-FUN)~~

3.3.5.13* Portable Vacuum Cleaner. ~~A movable assembly consisting of a vacuum source (AMD), AMS within an enclosure, and a vacuum hose, used to remove dusts and particles from surfaces. (CMD-FUN)~~

Statement of Problem and Substantiation for Public Comment

TG for definitions for AMS reviewed the various definitions of products that is an AMS and decided it would be easier for the public to understand the definition for each when these products was group together. Therefore, the products were placed as subchapter under AMS.

Related Item

- Work by TG on definitions for AMS

Submitter Information Verification

Submitter Full Name:

[REDACTED]

Organization:

Nederman LLC

Street Address:

City:

State:

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Submittal Date: Wed Dec 20 09:07:21 EST 2023

Committee: CMD-FUN



Public Comment No. 83-NFPA 660-2023 [Section No. A.3.3.5]



A.3.3.5 Air-Material Separator (AMS).--

Examples include the following: Cyclonic separator (cyclone) —

Additional examples are enclosureless dust collectors, point-of-use dust collectors, and bin vents.

As per the definition an AMS technically could be an oversized section of ductwork (for example a drop-box) but this would not be acceptable when combustible materials are involved as accumulations in ducting or piping runs is not allowed.

Typically, an AMS used in a dust collection system will, in addition to separating the conveyed material from the air/gas stream, include the ability to collect the separated material within the AMS to allow for continuous discharge of that material. (CMD-FUN)

A.3.3.5.1 Cyclone (Cyclonic separator) a device utilizing centrifugal forces and geometry to separate the

majority

particulates from the conveying air/gas. The efficiency of this separation is based upon many factors such as the geometry of the cyclone, material particle size distribution and density, and air/gas velocity. Generally, this unit is

considered only

used as an initial or primary separator, and additional separation devices might be needed to meet air pollution control requirements. Specially designed cyclones are able to meet air pollution control requirements, but requires special engineering data and know-how to design. (CMD-WOO)

Examples of Cyclones:

Fig A.3.3.5.1(1) low to medium efficiency Cyclone: (copy illustration from 3.3.24A here)

Fig. A.3.3.5.1(2) High efficiency cyclone: <http://www.ssenvirotech.co.in/cyclone-separator.ht>

A.3.3.5.2 Dust collector — a device utilizing filter media to separate particulates from the conveying air/gas stream. Such devices often have automatic methods for continuous filter cleaning in order to maintain the operational efficiency of the device. Typically the filter medium is either cartridges or bags over metal cages. The operating pressure of this device, especially if operating in a negative pressure (vacuum) condition, is usually limited by its shape and physical construction.

Examples of Dust collector:

Figure A.3.3.5.2(a) Bag Collector w/ compressed air Cleaning (copy illustration from A.12.9.4.4.1(b) here)

Figure A.3.3.5.2(b) Downflow Cartridge Collector w/ compressed air Cleaning.(copy illustration from A.12.9.4.4.1(a) here).

Figure 3.3.5.2(c) Bag Collector w/ dust collecting on outside of bag and w/ high pressure cleaning. (reverse air).(copy illustration from A.12.9.4.4.1(c) here)

Figure 3.3.5.2(d) Bag Collector w/ dust collecting on inside of bag and with reverse air cleaning. Need Permission for this image.

Figure3.3.5.2(e) Envelope Bag Collector with reverse air cleaning: Need permission for this image.

A3.3.5.3 Filter receiver — similar to a dust collector but can be designed for higher vacuum and pressure applications. Dust loading is often higher than a fugitive dust collection system since these units are typically used as an AMS for a product conveying system.

A.3.3.5.4 Scrubber (Wet type AMS) — a device utilizing geometry, physical barriers, and/or absorption methods, along with a fluid (e.g., sprays and streams) to separate and collect gases and/or dusts.

Figure A.3.3.5.4(a) Scrubber with internal baffles and water sump (copy illustration from A.12.9.4.4.2(a) here)

Figure A.3.3.5.4(b) Venturi-Style Scrubber (copy illustration from A.12.9.4.4.2(d) here).

A.3.3.5.5 Electrostatic precipitator — dry or wet - a device that utilizes differences in electrical charges to remove fine particulates from the gas stream. These are commonly used for large gas flows with abrasive dusts such as fly ash or cement.

Final filter —

See Figure A.3.3.5.5 for an image of an electrostatic precipitator

Figure.3.3.5.5 Electrostatic precipitator: <https://www.britannica.com/technology/air-pollution-control/Scrubbers>

A.3.3.5.6 A final filter is a high-efficiency device commonly utilizing a pre-filter and a secondary filter within an enclosure to provide the last particulate removal step before the air is discharged from the system. Final filters are commonly used when the air stream is recirculated to occupied areas. This device can provide protection against the failure of a dust collector or filter receiver upstream of the device. A high

-

efficiency particulate air (HEPA) filter is an example. (CMD-FUN)

A.3.3.5.7 “Enclosureless AMS (dust collector) devices have a limited use and only for dust collection. These units have specific and multiple limitations when used with combustible dusts. See Industry Specific Standard chapter 13 and chapter 15 for specific information about limitation of use. (CMD-FUN)

Figure A.3.3.5.7(a) Enlosureless Dust Collector (copy illustration from A.24.9.4.4.5 here)

A.3.3.5.13 A portable vacuum cleaner is any device that allows either the direct use of a hose (with or without tool) or is used to connect to a fixed-pipe run with hose connection stations. Such a device must have: a. A method to separate the vacuumed material from the conveying air flow. This is typically either a filter or filters (depending upon size and air flow rate) or a wet separation (impact or partially submerged). It may also include a modified cannister or enclosure of the separation media. b. A device and/or method to provide conveying air flow at a sufficient vacuum

level to allow use as a vacuum cleaner. This can range from a venturis connected to a compressed air supply to positive displacement, centrifugal, or regenerative vacuum blowers. Smaller units may use integral small vacuum blowers. The assemblies can range from drum cover units to large assemblies that require a forklift to move from one location to another. Combustible dust hazards and risks must be considered when using these devices. Additional information is provided in Chapter 9 of this standard

Figure 3.3.5.13(a) Portable vacuum cleaner with built-in vacuum source (AMD) Need Permission for this image.

Figure A.3.3.5.13 Portable vacuum cleaner with separate vacuum source (AMD) Need Permission for this image

Statement of Problem and Substantiation for Public Comment

The annex text for AMS definitions has been updated to reference the new subchapters under AMS and the TG has updated some of the information for each product and used some of the illustrations from other chapters.

Related Item

- FD report

Submitter Information Verification

Submitter Full



Organization: Nederman LLC

Street Address:

City:

State:

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Submittal Date: Wed Dec 20 09:22:04 EST 2023

Committee: CMD-FUN



Committee Input No. 462-NFPA 660-2023 [Section No. 15.1.3.2]

This was a First Revision that has been modified or deleted as the result of First Correlating Revision:

15.1.3.2

This ~~standard~~ chapter shall be used to supplement the requirements established by Chapters 1 through 9.

Submitter Information Verification

Committee: CMD-WOO

Submittal Date: Mon Jun 05 11:08:11 EDT 2023

Committee Statement

Committee Statement: This is no longer a standalone standard, but a chapter of NFPA 660.

Response Message: CI-462-NFPA 660-2023

Ballot Results

✓ **This item has passed ballot**

28 Eligible Voters

7 Not Returned

21 Affirmative All

0 Affirmative with Comments

0 Negative with Comments

0 Abstention

Not Returned

Dillon, Scott E.

Eaves, Dennis W.

Guaricci, Dan A.

Mayeaux, Ken J.

Myers, Timothy J.

Nichols, Jeffrey C.

Ural, Erdem A.

Affirmative All

Berry, Robert C.

Cholin, John M.
Craig, Benjamin
Dale, Stephen E.
Dastidar, Ashok Ghose
Davis, Randal R.
Haroz, Adam
Hensley, Todd
Krbec, Jason
Levitt, Peter
Masta, Richard F.
Mattos, Jr., Arthur P.
McLelland, Bruce
Miller, Jeremy
Patton, II, Jeffrey S.
Reason, Jason P.
Roberts, Jeffrey R.
Ryerson, Andrew
Slaunwhite, Jeramy
Tanguay, Francois
Wagoner, Allen



Committee Input No. 305-NFPA 660-2023 [Sections 15.9.4.3.2, 15.9.4.3.3]

Sections 15.9.4.3.2, 15.9.4.3.3

15.9.4.3.2 Specific Requirements for Pneumatic Conveying Systems.

15.9.4.3.2.1 General Requirements.

(A)

Pneumatic conveying systems shall be designed in accordance with NFPA 654 except as modified by this standard.

(B)*

Woodworking pneumatic conveying systems shall be restricted to handling wood residues; under no circumstances shall another operation that generates sparks, such as from grinding wheels, or flammable vapors, such as from a finishing operation, be connected to a woodworking pneumatic conveying system.

A.15.9.4.3.2.1(B)

Dust collectors for wood working should be labeled, "For Wood Dust Only — Do not use with metal dust or operations that generate sparks or flammable vapors, to avoid fire and/or explosion." It is the responsibility of the owner of the dust collector to provide this warning label or a similar one on the dust collector, if the label is not provided by the dust collector manufacturer.

In addition, similar warning labels could be located at woodworking machines.

(C)

Once a system airflow has been properly balanced, additional pickup points, duct modifications, and modification of balancing damper settings shall not be made without ensuring that the remaining portions of the system still have sufficient capture and conveying air velocities for their intended function.

(D)*

Every section of the collection system shall be sized for not less than the minimum air velocity and volume required to collect and transport the material through the ducting and into the collection equipment.

A.15.9.4.3.2.1(D)

While conditions can vary, 20 m/sec (4000 ft/min) is generally accepted as a minimum conveying velocity for wood particulate. Actual capture velocity can be much higher; the manufacturer should be consulted for specific recommendations.

15.9.4.3.2.2 Duct System.

(A)

Ductwork shall be metallic.

(B)

Flexible ducting shall be permitted for final machine connection in a length not exceeding the minimum required for machine operation.

(C)*

Nonconductive ducts such as PVC pipes shall not be permitted.

A.15.9.4.3.2.2(C)

A ground wire or other grounding system for PVC pipe is not acceptable.

(D)

Where extinguishing is present, horizontal ductwork subject to water accumulation shall be capable of supporting the weight of the duct system plus the weight of the duct half-filled with water.

(E)

Ductwork shall be protected from corrosion.

(F)

Dust collection air velocity and volume shall be calculated according to 15.9.4.3.2.2(G) and 15.9.4.3.2.2(H).

(G)

The capacity of the system shall be calculated on the basis of all hoods and other openings connected to the system being open or equipped with means to ensure minimum conveying velocity of 15.9.4.3.2.1(D) in all sections of the system.

(H)

Floor sweeps, which are normally closed and are only opened on an occasional basis to facilitate housekeeping, shall be permitted to be excluded from the air flow calculations for the system.

(I)*

Where dampers or gates are used for individual equipment, the volume and velocity resulting from the operation of such dampers or gates shall not reduce the system velocity below the design minimum.

A.15.9.4.3.2.2(I)

Where dampers or gates are necessary to achieve balance on systems that have been altered, they should be permanently fastened in place. Dampers should not be opened and closed during operation so that more suction can be diverted to other machines/branches, because the imbalance of airflow can cause insufficient velocity in the main duct, which will result in an accumulation of wood waste and become a potential fuel source for fire.

An automatic damper that is located in a branch duct and dedicated to an individual woodworking machine, and that opens when the machine is activated and closes when the machine is deactivated, should not be used if it will cause insufficient velocity [less than 20 m/sec (4000 ft/min)] in the main duct.

Variable speed controls, whether manual or automatic, should not be used if they can cause insufficient velocity in the main duct.

Sufficient velocity can be achieved by a number of methods, including the following:

- (1) Automatic damper and variable speed controls (if the branch pipe with the damper does not feed into the main duct but goes directly to the dust collector)
- (2) Dampers controlled by programmable controllers
- (3) Other engineered systems that maintain design velocity

(J)

Ducts used to convey particulate shall have a circular cross-section unless a non-circular cross-section of equal area is needed where the duct connects to other equipment or where external obstructions necessitate a non-circular cross-section be used.

(K)

Ductwork shall be bonded and grounded in accordance with 9.4.8.2(1).

(L)* Hazard Determination.

The dust accumulation hazard associated with the duct system shall be determined by means of a hazard analysis.

A.15.9.4.3.2.2(L)

Resinous woods such as southern yellow pine, spruce, and fir tend to yield wood dust that is tacky and can adhere to duct interiors. This is especially true on ducts serving abrasive planers and sanders, which also introduce heat input to the dust.

Hardwoods such as maple, oak, hickory, and cherry lack the resins of the soft woods and are much less likely to coat duct interiors with accumulated dust.

(M)* Duct Access

For duct systems subject to dust accumulation, access doors, openings, or removable sections of ductwork shall be provided in accordance with 15.9.4.3.2.2(L)

A.15.9.4.3.2.2(M)

Ductwork subject to dust accumulation should have sufficient access for inspection and fire department access, as determined by the configuration, length, and size of the duct.

15.9.4.3.2.3 Hoods and Enclosures.**(A)**

Hoods or enclosures shall be designed and located such that the wood dust or particulate generated will fall, be projected, or be drawn into the hoods or enclosures so as to minimize fugitive dust emissions without interfering with the safe and satisfactory operation of the machine.

(B) Reserved.

(C) Reserved.

(D)

All hoods and enclosures shall be of noncombustible construction unless protected with automatic sprinklers installed in accordance with NFPA 13.

15.9.4.3.2.4 Fans and Blowers (Air-Moving Devices).**(A)***

Fans or blowers shall be of appropriate type and sufficient capacity to maintain the required rate of airflow in all parts of the system.

A.15.9.4.3.2.4(A)

Although conditions can vary, 20 m/sec (4000 ft/min) is generally accepted as a minimum conveying velocity for wood particulate.

Many believe that fans should be located only on the clean-air side of dust collection equipment because this removes the fan, a potential ignition source, from the dusty airflow. Where deflagrable dusts are being conveyed, turbulence induced by fans can also accelerate deflagration burning, increasing the pressure rise (and damage potential) to the fan and duct in proximity to the fan inlet and outlet. However, the frequency of fans being an ignition source is very low.

Additionally, there is an advantage to having the fan upstream of the collection equipment. The fan can be left running to rapidly purge the duct of any material and discharge it from the system through a fast-acting abort gate. When actuated by a spark detector located a sufficient distance upstream, such an arrangement can effectively keep burning material from entering the dust collection equipment where the fire and explosion potential is known to be extremely high. Although this can also be done with negative pressure systems where the fan is located on the downstream side of the collector, it is a much more complex and expensive solution.

(B)

Fans and blowers shall be permitted to be located in accordance with 15.9.4.3.2.4(B)(1) through 15.9.4.3.2.4(B)(6):

- (1)* On the clean air side of dust collectors, regardless of the moisture content or particle size of the material being conveyed

A.15.9.4.3.2.4(B)(1)

The clean-air side of the dust collector is the preferred location for the fan or blower. When wood particulates are passed through the fan, there is the potential for ignition of the wood particulate due to the impact of the impeller, frictional heat from the fan motor, and bearings or fan impeller failure. Acceptable means for addressing this ignition potential are dependent upon the moisture content, particle size distribution, and minimum explosible concentration of the fines.

- (2)* Upstream of the dust collector when the material being conveyed has a moisture content in excess of 25 percent (wet basis)

A.15.9.4.3.2.4(B)(2)

No experience in the forest products industry is known to the members of the Technical Committee that indicates that an ignition of green wood particulates has occurred in the context of the conveyance systems. However, the user should keep in mind that wood particulates will lose moisture as they are conveyed. Variations in feedstock will also result in variations in the moisture content of the conveyed material. The conveyed material should be sampled at all extremes of operations to verify that the conditions that allow transport without downstream fire protection exist reliably. Furthermore, the wood particulates in such systems should be routinely sampled to ensure that the conveyance system is not operating outside of the design parameters.

- (3) Upstream of the dust collector when the material being conveyed has a moisture content of less than 25 percent (wet basis) and the concentration of sub-500 micron particulate is less than 25 percent of the MEC, and the duct downstream of the fan is equipped with a listed spark detection extinguishing system and/or abort system
- (4) Upstream of the dust collector when the material being conveyed has a moisture content of less than 25 percent (wet basis) and the concentration of sub-500 micron particulate is in excess of 25 percent of the MEC, and the duct and dust collector are equipped with either deflagration relief venting or deflagration suppression systems
- (5) Upstream of enclosureless dust collectors, in accordance with 15.9.4.4
- (6) Upstream of outdoor cyclone collectors receiving knife planer shavings when the fan and the cyclone are located outdoors and exhaust to outdoor atmosphere

(C)*

When fans with a deflagration hazard are arranged as material-handling fans on ducts, the fan housing shall meet the same design strength criteria required of the duct in 9.7.1.1.

A.15.9.4.3.2.4(C)

Designing a fan housing that can withstand maximum unvented explosion pressures is generally impractical except for very small fans. Also, the fan wheel or blower impeller acts as an obstruction to deflagration propagation and increases the air turbulence, both of which can increase deflagration pressures. Because of this, explosion suppression systems generally need to inject suppression agent into both the inlet and exhaust openings of the fan housing. Also, explosion venting might not be practical on the fan housing itself, so vents need to be located on the inlet and outlet ducts as close to the fan housing as practical. The duct vents should have an area equal to the cross-sectional area of the duct.

15.9.4.3.3 Specific Requirements for Dust Collection Systems.

The requirements in 15.9.4.3.2 shall apply to dust collection systems.

Submitter Information Verification

Committee: CMD-WOO

Submittal Date: Thu Feb 02 15:46:11 EST 2023

Committee Statement

Committee Statement: The committee will be reviewing these sections and determining what is repetitive with Chapter 9, and if there should be differences between the pneumatic conveying and dust collector sections.

Response Message: CI-305-NFPA 660-2023

Ballot Results

 This item has not been balloted